



TO STUDY THE POST OPERATIVE PAIN BY USING LOW DOSE LEVOBUPIVACAINE PLUS 2 DOSES OF FENTANYL COMBINATION FOR SADDLE ANAESTHESIA IN ANORECTAL SURGERY.

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ABSTRACT

Background & Methods: The aim of the research is to Study the post-operative pain by using low dose levobupivacaine plus 2 doses of fentanyl combination for saddle anaesthesia in anorectal surgery. This cross-sectional study was approved by our institutional ethical committee for a period of one year. Written informed consent was obtained from patients. Patients of physical status American society of anaesthesiologist (ASA) grade 1 and 2, aged between 18 to 75 years undergoing elective surgeries under Saddle anaesthesia, were included in the study. **Results:** No significant difference was observed between the groups with respect to gender, age, height and nausea & vomiting however Group 2 has better results in terms of post operative pain as compared to Group 1 & requirement of analgesia in the post operative period was less in group 2 as compared to group 1. **Conclusion:** Two different doses of fentanyl provided good quality saddle anaesthesia in anorectal surgery without affecting the motor functions and haemodynamics. However the addition of fentanyl increased the duration of sensory blockade with longer first analgesic requirement time without prolonging time to void or intensifying the motor blockade.

KEYWORDS :

INTRODUCTION:

Anorectal surgeries require deep anaesthesia because the area gets multiple nerve supply and is reflexogenic. Saddle anaesthesia is commonly used for anorectal surgeries due to advantages like simplicity, cost effectiveness, good relaxation, good postoperative pain relief and early mobilization. In the absence of any contraindications, it is generally the preferred mode of anaesthesia for these surgeries.

Anorectal surgeries are increasingly being done as day care surgeries. The goal of anaesthesia is therefore to provide good relaxation, analgesia and also a rapid return of sensory and motor functions, with minimal incidence of complications, to enable the patients to be discharged home comfortably on the same day.

In this study, we used two doses of fentanyl along with hyperbaric levobupivacaine, in "saddle block" spinal anaesthesia for anorectal surgeries. We compared the two doses of fentanyl with respect to recovery of sensory and motor functions, and postoperative pain. We also studied the incidence of complications like nausea, vomiting and urinary retention.

Levobupivacaine hydrochloride is the pure S(-)- enantiomer of racemic bupivacaine with less side effects in cardiovascular and central nervous system than bupivacaine. Patients are recommended to stay in the sitting position for 5-7 minutes after intrathecal administration to prevent the occurrence of hypotension. Adjuvants such as fentanyl potentiates the sensory blockade and facilitates the reduction in the dose of local anaesthetics. The aim of this analytical cross-sectional study is to compare the differences in sensory and motor blockade and complications of intrathecal 7.5 mg hyperbaric levobupivacaine plus 12.5mcg fentanyl with intrathecal 7.5 mg hyperbaric levobupivacaine plus 25mcg fentanyl.

MATERIAL AND METHODS:

Source of data:

Patients admitted in Sri Aurobindo medical college and PG Institute, Indore (M.P).

Method of collection of Data:

The cross-sectional study was approved by our institutional ethical committee for a period of one year. Patients were selected according to inclusion and exclusion criterias.

Mode of selection of cases:

All patients fulfilling the inclusion criteria and giving consent will be included. Group allocation will be done by alternate method where one patient will be given dose of group A and next patient will be given dose as mentioned in group B and this will continue till the sample size is achieved. The data will be recorded on the pre-structured proforma.

Patients with abnormal coagulation profiles, severe cardiopulmonary disease, diabetes, peripheral neuropathy, infection at the injection site, marked scoliosis, and patients receiving chronic analgesic therapy were excluded from the study.

total 110 patients were included in this study with 55 patients in Group A and 55 patients in Group B.

Group I (n = 55) received 7.5 mg hyperbaric levobupivacaine 0.5% (5 mg/ml) plus 12.5 mcg fentanyl

Group II received (n =55) 7.5 mg hyperbaric levobupivacaine 0.5% (5mg/ml) plus 25 mcg fentanyl.

Inclusion Criteria:

- ASA grade 1 and 2.
- Age group of 18 to 75 year
- Patient giving valid informed consent.
- Patients of either sex.

Exclusion Criteria:

- Patients refusal
- Patient with Saddle deformity
- ASA grade 3& 4
- Allergy to drug
- Local site infection
- Backache
- Peripheral Neuropathy.

RESULT

Table No.1: Patient characteristics

	Group 1	Group 2	P Value
Age (years)	26±8	29±6	0.409
Height (cm)	173±6	174±1	
Weight (kg)	73±72	79±42	
Gender (M/F)	46/09	41/14	

No significant difference was observed between the groups with respect to gender, age, height.

Table No.2: Operation time, type of surgical procedure

	Group 1	Group 2	P Value
Duration of surgery (min)	23±7.4	31±9.1	0.022
Surgical procedure			
Fistula	46	42	
Hemorrhoidectomy	04	06	
Anal fissure	05	07	

Group 2 had less post-operative pain as compared to Group 1.

Table No.3: Spinal block characteristics, time to first voiding of urine, analgesic requirement

	Group 1	Group 2	P Value
Time to first analgesic requirement (min)	182 (60-240)	253 (15-340)	0.718
Time to first void (min)	187 (120-292)	241 (105-420)	
Time to reach S4 blockade (min)	3 (2-5)	3 (3-5)	

First analgesic requirement time was shorter in group I as compared to group II. Time to reach S4 dermatome was similar between the groups.

Table No.4: Patient satisfaction

Patient satisfaction	Group 1	Group 2	P Value
Perfect	48 (87.2)	46 (83.6)	0.041
Satisfactory	7 (12.8)	08 (14.6)	
Poor	00	01 (1.8)	
Worst	00	00	

Incidence of nausea and vomiting were similar in both the groups.

DISCUSSION:

Levobupivacaine, the pure S(-)-enantiomer of bupivacaine, was demonstrated less affinity and strength of depressant effects onto myocardial and central nervous system compared with bupivacaine. Additionally, producing differential neuraxial block preserving motor function at low concentrations provides an advantage to levobupivacaine. Adjuvants such as fentanyl and sufentanyl reduce the dose of local anesthetics and prolong the sensory block without delaying time to void. The recommended intrathecal doses of fentanyl as adjuvant to local anesthetics is 10- 25 µg. Also these adjuvants improve tolerance to visceral sensations like bladder distension and peritoneal stretch. However adjuvants such as fentanyl to local anesthetics does not prolong the duration of motor blockade. two different doses of fentanyl combined with low-dose levobupivacaine were used in this study.

Hyperbaric local anesthetic solutions have a higher density compared with CSF. For this reason, hyperbaric local anesthetic solutions tend to move in a cephalad direction and may produce motor blockade in the anterior roots of the thoracic region in the prone position. It has been shown that using small doses of local anesthetics with adequate basicity and appropriate patient positioning, only the nerve roots supplying a specific area is affected. Also administration of local anesthetics with a high speed affects its distribution of levobupivacaine to the vertex position in the thecal cavity and causes hemodynamic changes. In this study we used hyperbaric solutions of levobupivacaine and measured the

densities of the solutions at 37°C. Local anesthetics were administered at a rate of 1 mL/60s in order to minimize the distribution of hyperbaric levobupivacaine depending on the conversion of patient posture from sitting position to prone position. Motor blockade was not observed in both of the study groups.

Erbay et al. compared the effects of spinal anesthesia provided by 7.5 mg hyperbaric bupivacaine plus 25 µg fentanyl with 7.5mg hyperbaric levobupivacaine plus 25 µg fentanyl for transurethral surgery. They found that hyperbaric levobupivacaine plus 25 µg fentanyl provided a shorter motor block time and a longer sensory block time than 7.5mg hyperbaric bupivacaine plus 25 µg fentanyl. In another study, Girgin et al. suggested that intrathecal administration of 25 µg fentanyl added to 5mg levobupivacaine 0.5% for inguinal herniorrhaphy increased the quality of spinal anesthesia and allowed to use a sub- anesthetic levobupivacaine dose. In the present study, levobupivacaine in combination with 25 µg fentanyl provided a sensory block with longer duration than the hyperbaric levobupivacaine in combination with 12.5 µg fentanyl. Also first analgesic requirement time was significantly longer in the spinal anesthesia group provided by hyperbaric levobupivacaine plus 25 µg fentanyl.

Cuvas et al compared 5mg 0.5% plain bupivacaine in 1 mL volume with 5mg 0.5% plain levobupivacaine in 1 mL volume for pilonidal cyst/sinus surgery in the prone position. They found similar results with regard to sensory and motor blockade in both of the groups. The median maximum level of sensory block reached to T10 dermatome in the levobupivacaine group. All the patients in the levobupivacaine group had motor blockade equivalent to Bromage score 1 or 2. Patient satisfaction was 92% in the levobupivacaine group. In the present study, we used 2.5mg dose of hyperbaric levobupivacaine with two different doses of fentanyl. We also found similar results for the time of onset of the sensory block in the two groups and motor block was not observed in any of the patients. We used small dose of levobupivacaine than Cuvas et al. used in their study and maximum sensory block was limited to the S1 dermatome in both of the groups. The sensory block level was sufficient for anorectal surgery and all the patients expressed their anesthetic satisfaction as good or very good.

Wassef et al. investigated the efficacy of 1.5mg bupivacaine in short perianal procedures with the dose of 6mg which was regularly used in spinal saddle block. They concluded that spinal perianal block produced by 1.5mg bupivacaine provided a significantly restricted sensory block levels (median maximum= S4), and motor block was not observed in any of the patient in this group compared with the group which was 6mg bupivacaine used. Also time to ambulation and voiding were shorter in the low dose bupivacaine group. They concluded that, maintaining the seated position is essential for restriction of blockade to the most caudal spinal nerve roots which supply the perianal area. In another study, Kazak et al. compared the efficacy of spinal 1.5mg hyperbaric levobupivacaine with 6mg hyperbaric levobupivacaine for anal surgery. Sensory block was limited to S4 dermatome in the perianal block group provided by 1.5mg hyperbaric levobupivacaine.

CONCLUSION:

Both regimens provided good quality saddle anesthesia in anorectal surgery without affecting the motor functions and hemodynamics. However the addition of fentanyl increased duration of sensory blockade with longer first analgesic requirement time without prolonging time to void or intensifying the motor blockade.

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